MONTHLY WEATHER REVIEW.

VOL. XIII. WASHINGTON CITY, OCTOBER, 1885. No. 10.

INTRODUCTION.

This REVIEW contains a general summary of the meteorological conditions which prevailed over the United States and Canada during October, 1885, based upon the reports from the regular and voluntary observers of the Signal Service and from co-operating state weather services.

Descriptions of the storms which occurred over the north Atlantic Ocean during the month are also given, and their approximate paths shown on chart i.

The number of areas of low pressure charted during the month is eight, the average for October for the last twelve years being 10.7. That described as number iv was the severest storm of the month, and during its passage from near Key West, Florida, to the Gulf of Saint Lawrence, from the 10th to 15th, caused dangerous gales and very high tides at the coast stations.

The mean temperature was below the normal by from 1° to 7° in the districts east of the Rocky Mountains, except in northern New England, where it was slightly above the normal. In the Rocky Mountain districts and on the Pacific coast the month was warmer than the average, the departures from the normal temperature being nearly as marked as those for districts to the eastward, as mentioned above.

The precipitation was above the average in the lower Missouri valley and over the greater part of the country to the eastward of the Mississippi River; it was below the average in the upper lake region, east Gulf states, and, except at a few stations, in all districts west of the Mississippi.

The very heavy rains of the 28th and 29th, attending the passage of the area of low pressure described as number vii, caused destructive freshets in Virginia and West Virginia.

There were but few local storms and tornadoes during the month.

Under the heading "Temperature of the air" will be found a table showing the dates of the last frosts of spring and the first frosts of autumn for the years from 1875 to 1884, inclusive.

An additional chart (number v) is published with this REVIEW; it shows the ranges of extreme temperature over the United States since the establishment of Signal Service stations, *i. e.*, the difference between the highest and lowest observed temperature during the period of observations.

In the preparation of this REVIEW the following data, received up to November 20, 1885, have been used, viz., the regular tri-daily weather-charts, containing data of simultaneous observations taken at one hundred and thirty-three Signal Service stations and seventeen Canadian stations, as telegraphed to this office; one hundred and seventy-seven monthly journals and one hundred and sixty-six monthly means from the former, and seventeen monthly means from the latter; two hundred and eighty monthly registers from voluntary observers; forty-five monthly registers from United States Army post surgeons; marine records; international simultaneous observations; marine reports through the co-operation of the "New York Herald Weather Service;" abstracts of ships' logs, furnished by the publishers of "The New York Maritime Register;" monthly weather reports from the New England Meteorological Society, and from the local weather services of Alabama, Georgia, Indiana, Minnesota, Missouri, Nebraska, Ohio, and Tennessee, and of the Central Pacific Railway Company; trustworthy newspaper extracts, and special reports.

Referring to the use of the terms "cyclones," "areas of low pressure," "tornadoes," etc., the following brief definitions have been recommended for general use in this REVIEW:

It is advised that the terms "areas of high pressure" and "areas of low pressure" be used in publications describing the location of either feeble or decided minima or maxima of atmospheric pressure, but upon the occurrence of distinct cyclones, as defined below, the term "cyclone" should be used in descriptions.

A cyclone is a large, gyratory storm, generally from 500 to 1,000 miles, or more, in diameter, with a considerable area of low pressure in the interior.

A tornado consists of a very small and violent gyration of air, generally much less than a mile in diameter, with a rapidly ascending current in the centre, and a low atmospheric pressure very near the centre although there is generally too much violence of agitation for it to be observed, and it is specially marked by a characteristic funnel-shaped cloud with a progressive movement.

ATMOSPHERIC PRESSURE.

[*Expressed in inches and hundredths.*]

The mean atmospheric pressure for October, 1885, determined from the tri-daily telegraphic observations of the Signal Service, is shown by isobarometric lines on chart ii.

The mean pressure is greatest over the central and northern Rocky Mountain districts, where the barometric means generally range between 30.1 and 30.14, the highest monthly mean, 30.14, being reported from Fort Benton, Montana. The mean pressure is least over Florida and the southern portions of Arizona and California, the barometric means ranging from 29.9 to 29.95, the lowest being 29.9, at Fort Thomas, Arizona. Eastward from the area of greatest mean pressure to the upper lake region the barometric means decrease to 29.94 (at Milwaukee, Wisconsin), and from the upper lake region eastward to New England and the Canadian Maritime Provinces the mean pressures increase to 30.07 at Yarmouth, Nova Scotia. From the south Atlantic coast to western Texas there is a gradual increase in the barometric means from 29.95 to 30.05. Along the Pacific coast the pressures increase with the latitude from 29.91 in southern California to 30.0 on the north Pacific coast.

As compared with the mean pressure for the preceding month, there has been a decrease, ranging from .01 to .08, in all districts to the eastward of the Mississippi River, with the exception of the east Gulf States, New England, and the Canadian Maritime Provinces, where there has been an increase. A decrease in the barometric means for October as compared with those for September, in the districts above named, is an abnormal feature, as the normal pressure for October averages about .05 above that for September. To the westward of the